

SUPPORT FOR THE AMENDMENTS

This Amendment cancels withdrawn Claims 4-5, 7, 12-13, 24-28, 33-38; amends Claim 20; and adds new Claims 39-45. Support for the amendments is founding the specification and claims as originally filed. In particular, support for Claim 20 is found in the specification at least at page 70, lines 17-19 (i.e., "an atomic reducing gas 251 (atomic hydrogen) is produced and injected into chamber 201 through reducing gas inlet nozzle 215"). Support for Claim 39 is found in the specification at least at page 23, lines 3-5. Support for Claim 40 is found in the specification at least at page 70, line 15. Support for Claim 41 is found in the specification at least at page 70, lines 2-4. Support for Claim 42 is found in the specification at least at page 70, lines 13-15. Support for Claim 43 is found in the specification at least at page 69, lines 25-26. Support for Claim 44 is found in the specification at least at page 70, line 16. Support for Claim 45 is found in the specification at least at page 32, lines 18-24. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 20 and 39-45 will be pending in this application. Claim 20 is independent.

REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

The present invention provides an apparatus for the formation of a metal film. The apparatus comprises (i) precursor feeding means for producing a precursor; (ii) reducing gas heating means for producing an atomic reducing gas between a substrate and the precursor feeding means, and for injecting the atomic reducing gas into the chamber between the

substrate and the precursor feeding means; and (iii) chamber heating means for heating an inner wall of the chamber to a predetermined temperature.

Claim 20 is rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,091,209 ("Claverie") taken in view of JP 60-116776 ("Inoue"), U.S. Patent No. 6,440,494 ("Arena-Foster") and U.S. Patent No. 6,001,172 ("Bhandari"), and taken in further view of U.S. Patent No. 4,796,562 ("Brors") and U.S. Patent No. 5,273,588 ("Foster").

Claverie discloses a low temperature chemical vapor deposition process in which a gas stream containing a copper halide is reacted with hydrogen, and activated by a heated catalytic metal filament, to deposit a copper film on a substrate. Claverie at abstract. Claverie discloses that the gas stream containing copper halide can be formed by supplying halogen gas (X_2) or a hydrogen halide gas (HX) into a heated copper tube or pipe 22. Claverie at column 2, lines 55-58; Fig. 1.

The Final Rejection dated May 26, 2006, asserts at page 2, lines 8-11, that Claverie discloses "a reducing gas heating means (filament 14 of fig. 1) for heating a hydrogen containing reducing gas to a high temperature and thereby producing an atomic reducing gas within the chamber between the substrate and the precursor feeding means".

However, Claverie's filament 14, which is already "arranged within" (Claverie at column 4, line 45) Claverie's reaction chamber 10 between substrate 16 and copper tube 22, cannot inject activated hydrogen into the chamber 10. Thus, Claverie fails to suggest the independent Claim 20 limitation of "**reducing gas heating means** for heating a hydrogen-containing reducing gas to a high temperature and thereby producing an atomic reducing gas, and **for injecting** the atomic reducing gas **into** the chamber between the substrate and the precursor feeding means". Claverie's filament 14 interferes with the flow of copper-containing gas from copper pipe 22 to substrate 16. Claim 20's "reducing gas heating means" avoids this disturbance.

The secondary references fail to remedy the deficiencies of Claverie. The Final Rejection at page 2, lines 13-17, cites Inoue, Arena-Foster and Bhandari for disclosing that, instead of a copper tube, the "hot metallic source element for forming the precursor gas can be in the form of a filament". The Final Rejection at page 3, lines 1-7, cites Brors and Foster for disclosing chamber heating means for heating an inner wall of a chamber to a predetermined temperature.

Because the cited prior art fails to suggest the independent Claim 20 limitation of a "reducing gas heating means for heating a hydrogen-containing reducing gas to a high temperature and thereby producing an atomic reducing gas, and for injecting the atomic reducing gas into the chamber between the substrate and the precursor feeding means", the rejection of Claim 20 under 35 U.S.C. § 103(a) should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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